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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/786,161	03/02/2001	Miroslaw Z Bober	203524	6953

2292 7590 01/15/2004

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EXAMINER

MARIAM, DANIEL G

ART UNIT PAPER NUMBER

2621

DATE MAILED: 01/15/2004

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Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/786,161

Applicant(s)

BOBER, MIROSLAW Z

Examiner

DANIEL G MARIAM

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 02 March 2001.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 23-50 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 23-37 and 44-50 is/are rejected.
- 7) ☒ Claim(s) 38-43 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. §§ 119 and 120**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All   b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.  
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)                      4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)                      5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4 .                      6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Specification***

1. The disclosure is objected to because of the following informalities: while applicant's preliminary amendment filed March 2, 2001 cancels original claims 1-22, the specification (See for example, pp. 4-7) does refer back to these cancelled claims. Appropriate correction is required.

### ***Claim Objections***

2. Claim 33 is objected to because of the following informalities: in claim 33, the limitation "CSS" should be preceded by it's meaning. Appropriate correction is required.

3. Claim 43 is objected to because of the following informalities: claim 43 depend on canceled claim 1, and should be canceled when responding to this Office Action.

4. Claim 38 is objected to because of the following informalities: While claim 38 recites " $z' = a \text{ pow}(z, b) + c$ ", the specification says " $y' = a \text{ pow}(y, b) + c$ " See page 11 of the specification). It is unclear why the applicant has chosen a different parameter, i.e.,  $z$  or  $z'$ , which does not conform to the parameter used in the specification. Please clarify.

Since claims 39-42 directly or indirectly depend on claim 38, they are also objected to for the same reason set forth above for claim 38.

### ***Claim Rejections - 35 USC § 112***

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

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6. Claims 48-50 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite in that it fails to point out what is included or excluded by the claim language. This claim is an omnibus type claim.

7. Claim 38 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 38 recites the limitation (z'), and it is unclear what z' suppose to represent. Please clarify.

8. Claim 32 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. What does the limitation "a non-trivial transformation" mean? Please clarify.

***Claim Rejections - 35 USC § 102***

9. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

10. Claims 23, 25-27, and 44-47 are rejected under 35 U.S.C. 102(b) as being anticipated by Horowitz (4,989,257).

With regard to claim 23, Horowitz discloses a method of representing an object appearing in a still or video image, by processing signals corresponding to the image, the method comprising deriving a plurality of numerical values representing features appearing on the outline, i.e., boundary, of an object, i.e., character, and applying a scaling or non-linear

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transformation to said values to arrive at a representation of the outline (See for example, col. 11, lines 4-58).

With regard to claim 25, wherein the number of said numerical values depends on the shape of the outline (See Fig. 2).

With regard to claim 26, wherein the scaling or non-linear transformation does not depend on the outline shape (See for example, col. 11, lines 28-46).

With regard to claim 27, wherein the numerical values reflect points of inflection on the outline (See for example, Figs. 1 and 2).

Claim 44 is rejected the same as claim 23 except claim 44 is an apparatus claim. Thus, argument analogous to that presented above for claim 23 is equally applicable to claim 44.

Claim 45 is rejected the same as claim 23. Thus, argument analogous to that presented above for claim 23 is equally applicable to claim 45. As to a computer program for implanting a method as claimed in claim 23 (See for example, Figs. 1, 3-4, and Appendix A).

Claim 46 is rejected the same as claim 23. Thus, argument analogous to that presented above for claim 23 is equally applicable to claim 46. As to a computer system programmed to operate according to a method as claimed in claim 23 (See for example, Figs. 1, 3-4, and Appendix A).

Claim 47 is rejected the same as claim 23. Thus, argument analogous to that presented above for claim 23 is equally applicable to claim 47. As to a computer readable storage medium storing computer executable process steps for implementing a method as claimed in claim 23 (See for example, Figs. 1, 3-4, and Appendix A).

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11. Claims 31-37 are rejected under 35 U.S.C. 102(b) as being anticipated by Mokhtarian (Silhouette-Based Isolated Object Recognition through Curvature Scale Space).

With regard to claim 31, Mokhtarian discloses a method of representing an object appearing in a still or video image, by processing signals corresponding to the image, the method comprising deriving a curvature scale space representation of the object outline, selecting co-ordinate for peaks in the curvature scale space, and applying a non-trivial transformation to peak co-ordinate values to arrive at a representation of the object outline (See for example, pp. 539-540, section II, sub-sections A-C; and sections IV-V, pp. 540-542).

With regard to claim 32, wherein the curvature scale space representation is such that peak co-ordinate values are substantially invariant to the scale of the object outline (See for example, pages 539-540, section II, sub-section B).

With regard to claim 33, wherein the transformation is applied to the co-ordinate values corresponding to a smoothing parameter in the CSS representation (See section II, pp. 539-540, sub-paragraphs B and C; and section V, pp. 541-542).

With regard to claim 34, wherein the transformation is applied to the co-ordinate values corresponding to an arc-length parameter along the outline (See for example, pp. 539-540, Section II, sub-section B).

With regard to claim 35, wherein the transformation is a scaling transformation (See for example, Section II, sub-section B, pp. 539-540; and page 541, section IV, sub-section A).

With regard to claim 36, the transformation is a non-linear transformation (See for example, page 541, section IV, sub-section A).

With regard to claim 37, wherein the transformation does not depend on the outline shape (See for example, Section II, sub-section B, pp. 539-540; and page 541, section IV, sub-section A).

***Claim Rejections - 35 USC § 103***

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

13. Claims 24 and 28-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Horowitz (4,989,257) in view of Mokhtarian (Silhouette-Based Isolated Object Recognition through Curvature Scale Space).

With regard to claim 28, Horowitz discloses all of the claimed subject matter as already set forth above in paragraph 10, and entirely incorporated herein by reference. Horowitz, however, does not explicitly call for deriving a curvature scale space representation of the outline by smoothing the outline in a plurality of stages using a smoothing parameter resulting in a plurality of outline curves, using values for feature points on each outline curve to derive curves characteristic of the original outline, and selecting the co-ordinates of peaks of said characteristic curves, wherein said transformation is applied to peak co-ordinate values. However, Mokhtarian (pp. 539-540, section II, sub-sections A-C; and sections IV-V, pp. 540-542) teaches this feature. Therefore, it would have been obvious to one having ordinary skill in the art to incorporate the teaching as taught by Mokhtarian into the system of Horowitz if for no other reason than to

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represent the outline/contour using a curvature scale space, and to do so would at least allow the recognition of objects in an image reliably (See section I, 1<sup>st</sup> paragraph).

With regard to claim 24, wherein the numerical values are substantially invariant to the scale of the outline (See for example, section II, sub-section B; and page 541, section IV, sub-section A, of Mokhtarian).

With regard to claim 29, wherein the feature points relate to the curvature of each outline curve (See for example, section II-III, pp. 539-541 of Mokhtarian).

With regard to claim 30, wherein the feature points relate to the maxima and minima of the curvature of the outline curves (See for example, section II, sub-section C of Mokhtarian).

### ***Conclusion***

14. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. US Patent Numbers: 5081689, 5119439, 5487116, 6014461, and 6182069, European Patents: GB2203877, EP0281725, and a Publication Hamano "A similarity retrieval method for image databases using simple graphics".

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to DANIEL G MARIAM whose telephone number is 703-305-4010. The examiner can normally be reached on M-F (7:00-4:30) FIRST FRIDAY OFF.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, LEO BOUDREAU can be reached on 703-305-4607. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.



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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-306-0377.



**DANIEL MARIAM**  
**PRIMARY EXAMINER**

January 9, 2004